

**TECHNIQUE FOR MEASURING TEMPERATURE AND CURRENT VIA
A MOSFET OF A SYNCHRONOUS BUCK VOLTAGE CONVERTER**

ABSTRACT

In order to derive a precise measurement of temperature and current in a synchronous buck DC-DC converter a synchronous conduction cycle measurement of the value of reverse conduction voltage (V_{ON}), and an asynchronous conduction cycle measurement of the value of body diode conduction voltage (V_{DF}) of the low side power MOSFET are performed. These two measured values are then used as dual inputs to a two-dimensional to two-dimensional transform function (e.g., look-up table) that is effective to map the measured voltage values into output values for current (I) and temperature (T).